Hierarchical ANOVA

Psychology 3256

Introduction

- Usually all of our factors (independent variables) are crossed with each other
- Each level of A occurs with each level of B for example
- I am not talking about subjects here, they of course are often nested
- Sometimes, things are different

Different drugs and hospitals

H1	H1	H2	H2	H3	H3
D1	D2	D3	D4	D5	D6
G1	G2	G3	G4	G5	G6

- Drugs are nested within hospital
- n=5 burn survivors per group

So, this is a bit different..

- So both are tested with S (DH)
- Note, it is NOT S(D(H))
- There are cases where this is useful

sv	df	test
H	(h-1) = 2	S(DH)
D(H)	(d-1)h = 3	S(DH)
S(DH)	(n-1)dh = 24	

Example 2 (n=3)

- N
  n
  v
  v
- H
  n
  c

	A1	A1	A2	A2
	B1	B2	B3	B4
C1	G1	G2	G3	G4
C2	G1	G2	G3	G4

r,
er, Yates'
Girlfriend

sv	df	test
A	(a-1) = 1	S(AB)
B(A)	(b-1)a = 2	S(AB)
S(AB)	(n-1)ab = 8	
C	(c-1) = 1	CS(AB)
CA	(c-1)(a-1) = 1	CS(AB)
CB(A)	(c-1)(b-1)a = 2	CS(AB)
CS(AB)	(c-1)(n-1)ab = 8	
TOTAL	N-1 = 23	

You should be able to go the other way too..

sv	df
B	2
S(B)	9
A	2
BA	4
AS(B)	18
TOTAL	35

remember...

- Using Yates' order we can figure out any design and the error terms
- We have a little problem here though, is hospital a fixed or a random factor?
- Avoid these designs like the plague...